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Case report

Primary temporal region squamous cell carcinoma diagnosed by a superficial temporal artery biopsy

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ABSTRACT

Background: Superficial temporal artery biopsy is a frequent procedure performed in the diagnosis of giant cell arteritis.
Methods and results: An otherwise healthy 69-year-old man presented with 2 months complaint of right temporal region pain. Giant cell arteritis was suspected and a temporal artery biopsy was performed. The histopathology revealed perineural invasion of squamous cell carcinoma (SCC). A thorough investigation revealed no other primary site for the SCC and the patient was treated with surgical excision.
Conclusion: Malignancy is rarely found in superficial temporal artery biopsies and lymphoma is the most common malignancy reported. In this rare case, the patient had right temporal pain explained by perineural invasion of a primary SCC in the right temporal region, which was treated with surgical excision guided by perioperative fresh frozen histology.

1. Introduction

Biopsy of the superficial temporal artery is a frequently performed procedure when giant cell arteritis is suspected. Giant cell arteritis is a systemic, inflammatory vascular syndrome involving the temporal arteries. The clinical suspicion of giant cell arteritis should be raised in the elderly patient with localized headache, chewing claudication, tenderness or decreased pulse of the temporal artery, acute visual loss and an elevated erythrocyte sedimentation rate (ESR). We here report a case of squamous cell carcinoma diagnosed in a superficial temporal artery biopsy.

2. Case report

A 69-year-old man presented to the Department of Rheumatology with 2 months' complaint of pain in his right temporal region. He had no visual disturbances, but did have a left-sided secondary cataract. He had no tenderness of the temporal regions and no chewing claudication even though the pain worsened when chewing. He had no signs of infection, fever, weight loss or night sweats. He is a non-smoker and only drinks alcohol socially. His previous medical history includes a deep venous thrombosis in his lower left extremity, hypertension and several basal-cell carcinomas (BCC) of the skin. He had BCC lesions removed in 1999 and 2006 from the region around his left ear and in 2006 in front of the right ear. In 2009, a skin biopsy from his right ear showed actinic keratosis (AK). In 2010, he had a lesion removed in his right temporal region that showed inflammation with hyper- and parakeratosis but no signs of malignancy.

The medical examination revealed a man in good health. His right temporal artery was hard and initially found without pulsation but a later clinical examination found pulsation of the artery. The skin over the temporal region was normal and intact and the remaining clinical examination was normal. All blood samples were normal including ESR and C-reactive protein (CRP).

A biopsy of the right superficial temporal artery was performed to rule out giant cell arteritis. The histopathology revealed a temporal artery with no signs of giant cell arteritis; however, perineural invasion of squamous cell carcinoma with characteristic epithelial pearls was found in the perivascular connective tissue (Fig. 1A and B).

As part of investigation for unknown primary, a full body PET/CT-scan was performed and found to be normal. A complete otolaryngological exam was likewise normal. The skin in the temporal region was found to be normal. The patient was referred to the Department of Plastic Surgery for further investigation. The biopsies from the right side in 2006 and 2010 were re-examined and found without malignancy; a supplemental MRI was normal except for a slight thickening of the subcutaneous tissue in the right temporal region. Primary was assumed to be the right temporal region.

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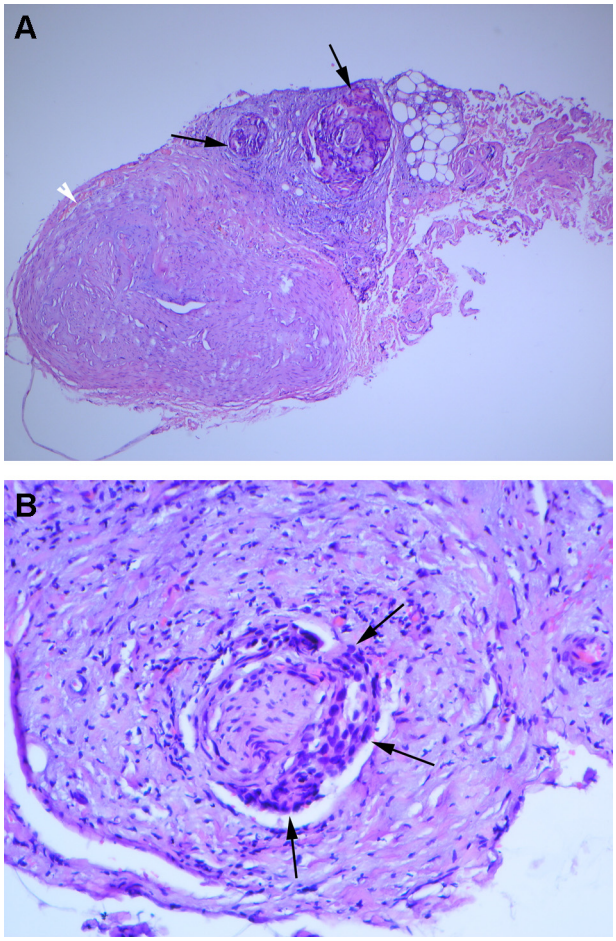

Fig. 1. A. HE staining of the biopsy showing a branch of the right temporal artery (white arrow head) and perivascular tissue with perineural invasion of SCC (black arrows), 40 × magnification. B. Characteristic epithelial pearl of SCC (black arrows) found in the biopsy specimen. HE stain, 400 × magnification.

The patient was operated with removal of the area of the original biopsy site, perioperative fresh frozen histology confirmed SCC and guided the surgery to further surgical excision in a cranial direction as well as toward the zygomatic arch including the temporal fascia. The frontal branch of the right facial nerve was sacrificed during the surgery. The final histology from the excised area confirmed SCC with perineural invasion with a small surgical margin of 1 mm in the cranial part of the resection.

At the time of writing, the patient was followed up at 3-month intervals.

3. Discussion

Only in rare cases has malignancy been diagnosed in temporal artery biopsies and most cases have been of lymphoma. Masood et al. have reported a case of perivascular mantle cell lymphoma affecting the temporal artery; the patient presented with a temporal headache found to be caused by peripheral nerve and artery side branch involvement by a lymphoma immediately adjacent to the temporal artery [1]. Tannenbaum et al. and Webster et al. have also described cases of lymphomatous perivascular infiltration involving the temporal artery [2,3]. Bhatti et al. have presented a case of a metastatic embolus of lung cancer found in the lumen of the temporal artery in a patient presenting with headache and acute unilateral visual loss [4]. We have found no previous reports on SCC being diagnosed in a superficial artery biopsy.

In our case, the biopsy was performed to rule out giant cell arteritis. The patient only had few symptoms suggesting giant cell arteritis: however, the patient's main complaint of right temporal pain is explained by the perineural invasion of the SCC. Several theories for the origin of the patient's SCC can be suggested; the right temporal lesion removed in 2010 could be have been the primary even though reviewed histology did not show malignancy. The patient also has a history of actinic keratosis (AK), which is a precancerous lesion [5], and an AK overlooked could have progressed to SCC.

Surgical excision of the site of the SCC lesion is the definite treatment and careful follow-up is needed also to ensure that another primary site has not been overlooked.

4. Conclusion

Superficial temporal artery biopsy is a frequently performed procedure when giant cell arteritis is suspected. Malignancy in the temporal artery and surrounding perivascular tissue is a rare differential diagnosis with lymphoma being the most commonly reported malignancy. Squamous cell carcinoma with perineural invasion located as primary in the temporal region can present as one-sided pain with worsening when chewing and be a rare differential diagnosis to giant cell arteritis.

Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

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